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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,488

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ALEXANDRIA, VA 22320-4850

EXAMINER

ASFAW, MESFIN T

ART UNIT

PAPER NUMBER

2851

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,488	Applicant(s) KAYAMA ET AL.	
	Examiner Mesfin T. Asfaw	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/20/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt is acknowledged of the Preliminary Amendment filed 12 June 2006.
Claims 3, 8, 12 - 13, 16 and 24 - 25 have been amended to make editorial changes.
Claims 26 - 33 have been newly added.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Suwa USPN 6191429 B1.

As per claims 1, and 4-6, Suwa anticipated a projection exposure apparatus (fig. 1) that supplies liquid (fig. 9 (LQ)) in a space between a projection optical system PL and a substrate W and transfers a pattern on said substrate via said projection optical system and said liquid (Column 6 lines 48-54), said apparatus comprising:
a substrate table WH on which a substrate is mounted that can be moved holding said substrate; and a correction unit 35,38 that corrects positional deviation occurring in at least one of said substrate and said substrate table (Column 14 lines 37-55) (correction unit is supposed to correct any positional deviation regardless of the cause of deviation).

said correction unit corrects positional deviation that occurs by a change in the shape of said substrate table (Column 9 lines 24-42, "a piezoelectric expansion elements 32A-C are used to correct deviation by the table"). said substrate table has a fiducial member used for position setting, and said correction unit corrects positional deviation between said fiducial member and said substrate (Column 17 lines 31-44). correction unit corrects the distance between said projection optical system and said substrate in an optical axis direction of said projection optical system (Column 9 lines 35-42, "Z-direction move").

As per claims 2, 3 and 28, Suwa anticipated a position measuring system 33 that measures positional information of said substrate table WH. correction unit 38 corrects an error in said positional information in at least one of said substrate and said substrate table measured directly or indirectly by said position measuring system (Column 10 lines 36-48).

As per claim 7 and 8, Suwa anticipated correction unit that can be used in immersion lithography (Column 26 lines 13-24). (Liquid pressure and surface tension are inherently been there as a result of use of a liquid in immersion lithography).

As per claim 9, Suwa anticipated said correction unit corrects positional deviation that occurs by vibration of said substrate table (Column 13 lines 30-41) (any positional deviation regardless of the cause is supposed to be recognized by the detection unit).

As per claims 10 and 11, Suwa anticipated a mask stage 14 on which a mask R having said pattern formed is mounted that can be moved holding said mask (Column 8 lines 28-36); and said correction unit corrects said positional deviation by changing a

thrust given to at least one of said substrate table and said mask stage (Column 8 lines 36-48) and (Column 9 lines 24-35). wherein said correction unit comprises a controller that changes said thrust by feedforward control (fig. 4, Column 14 lines 11-17).

As per claims 12 and 13, Suwa anticipated said correction unit corrects said positional deviation based on position measuring results of a transferred image of said pattern transferred on said substrate (Column 9 lines 42-51). said correction unit corrects said positional deviation based on simulation results (Column 17 lines 31-44).

As per claim 26, Suwa anticipated the projection exposure apparatus wherein supply of said liquid (fig. 9 (LQ)) in said space between said projection optical system PL and said substrate W. Although Suwa did not specifically mention how the liquid is supplied, it is a common practice in immersion lithography to use a liquid supply unit to supply liquid to a part of substrate.

As per claim 27, Suwa anticipated substrate table WH that has a holding member which holds said substrate and plate members arranged in the periphery of said holding member (Column 6 line 55 – Column 7 line 9).

As per claims 14-16, Suwa anticipated a stage unit that has a substrate table (fig. 1 (WH)) which movably holds a substrate whose surface is supplied with liquid (fig. 9 (LQ)), said unit comprising:

a position measuring unit 33 that measures positional information of said substrate table; and a correction unit 35,38 that corrects positional deviation occurring in at least one of said substrate and said substrate table due to supply of said liquid. said correction unit corrects positional deviation that occurs by a change in the shape of said

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substrate table (Column 9 lines 24-42, "a piezoelectric expansion elements 32A-C are used to correct deviation by the table"). said substrate table has a fiducial member used for position setting, and said correction unit corrects positional deviation between said fiducial member and said substrate (Column 17 lines 31-44).

As per claim 29, Suwa anticipated the projection exposure apparatus wherein supply of said liquid (fig. 9 (LQ)) in said space between said projection optical system PL and said substrate W. Although Suwa did not specifically mention how the liquid is supplied, it is a common practice in immersion lithography to use a liquid supply unit to supply liquid to a part of substrate

As per claim 30, Suwa anticipated substrate table WH that has a holding member which holds said substrate and plate members arranged in the periphery of said holding member (Column 6 line 55 – Column 7 line 9).

As per claim 31, Suwa anticipated position measuring system 33 measures positional information of said substrate table without involving said liquid (Column 9 lines 42-51).

As per claims 17-25 and 32-33, Suwa discloses an exposure method in which liquid is supplied to a space between a projection optical system and a substrate held on a substrate table and a pattern transferred onto said substrate via said projection optical system and said liquid, a detection process and a transfer process in which said pattern is transferred onto said substrate based on results of said detection. because under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claims, then the method claimed will be

considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324,231 MPEP 2112.02”

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mesfin T. Asfaw whose telephone number is 571-270-5247. The examiner can normally be reached on Monday to Friday, 7:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Mesfin T Asfaw/
Examiner, Art Unit 2851

/Hung Henry Nguyen/

Primary Examiner of Art Unit 2851

8/1/08